

ABSTRACT OF THE DISCLOSURE

A unidirectional tape comprising carbon fibers and a fugitive binder is provided, as well as methods for forming the tape and composite parts using the unidirectional tape in a resin-transfer molding (RTM) process. A fugitive binder adheres fibers of the tape. The tape is laid in an RTM mold, and the mold is sealed or vacuum bagged, then heated. Hot nitrogen gas is pumped through the mold cavity, heating the carbon fibers to completely pyrolyze the binder. No residue from the binder remains, as the nitrogen carries gaseous products from the pyrolysis out of the mold. The mold is cooled to a temperature suitable for resin injection, and resin is injected into the mold cavity, wetting the fibers of the tape and completely filling the cavities of the mold. The mold is heated to cause curing of the resin, then cooled and disassembled for removal of the completed composite component.

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